

Final

**Site-Specific Field Sampling Plan,
Site-Specific Safety and Health Plan, and Site-Specific
Unexploded Ordnance Safety Plan Attachments
Former Rifle Grenade Range North of Washington
Ranges, Parcel 221Q-X**

**Fort McClellan
Calhoun County, Alabama**

**Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 796887**

February 2001

Revision 1

**Final
Site-Specific Field Sampling Plan Attachment
Site Investigation at Former Rifle Grenade Range North of
Washington Ranges, Parcel 221Q-X
Fort McClellan, Calhoun County, Alabama**

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List of Acronyms

See Attachment 1 – List of Abbreviations and Acronyms.

Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Delivery Order CK10, IT Corporation will conduct site investigation activities at the Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X, at Fort McClellan (FTMC), Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site. The purpose of this site-specific field sampling plan is to provide technical guidance for sampling activities at the Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X.

Former Rifle Grenade Range, Parcel 221Q-X, is located east of Iron Mountain Road, directly northeast of Former Range 19, Qualification Pistol Range, Parcel 75Q, and south of Former Skeet Range, Parcel 69Q. The FTMC archive search report states that this rifle grenade range was used during World War II and was abandoned by 1958. It is also reported in the search report that World War II vintage rifle grenades were found northeast of Range 19 on the south side of the service road. The area is currently heavily wooded and no standing structures exist within the parcel boundaries.

Specifically, IT Corporation will collect three surface soil samples, three subsurface soil samples, two surface water samples, and two sediment samples at this site. Potential contaminant sources at Former Rifle Grenade Range, Parcel 221Q-X, are primarily unknown, but may include metals and nitroexplosives. Chemical analyses of the samples collected during the field program will include metals, perchlorate, and nitroexplosives. Results from these analyses will be compared with site-specific screening levels developed in the July 2000 *Human Health and Ecological Screening Values and PAH Background Summary Report*, and regulatory agency guidelines.

Former Rifle Grenade Range, Parcel 221Q-X, falls within the “Possible Explosive Ordnance Impact Areas in Central Main Post” shown on Plate 10 of the July 1999 FTMC archive search report maps; therefore, unexploded ordnance surface sweeps and downhole surveys of soil borings will be required to support field activities. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of unexploded ordnance (UXO) avoidance.

This site-specific field sampling plan attachment to the installation-wide sampling and analysis plan (SAP) for Former Rifle Grenade Range, Parcel 221Q-X, will be used in conjunction with

the site-specific safety and health plan, site-specific UXO safety plan, the installation-wide work plan, and the SAP. The SAP includes the installation-wide safety and health plan, waste management plan, and quality assurance plan. Site-specific hazard analyses are included in the site-specific safety and health plan and the site-specific UXO safety plan.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. At the request of the U.S. Army, IT Corporation (IT) has been requested to conduct fast-track site investigation (SI) activities at Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X, at FTMC, Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site for potential quick release of the property by the U.S. Army. The area of this parcel was specified by the FTMC transition force. IT will conduct SI activities in accordance with Contract Number DACA21-96-D-0018, Task Order CK10.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 2000a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X. This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) and site-specific unexploded ordnance (UXO) safety plan developed for Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X, and the installation-wide work plan (WP) (IT, 1998), and SAP. The SAP includes the installation-wide safety and health plan (SHP), waste management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP and site-specific UXO safety plan attachment.

Former Rifle Grenade Range North of Washington Ranges, Parcel 221Q-X, will be referenced as Former Rifle Grenade Range, Parcel 221Q-X, throughout the text.

1.2 Site Description

Former Rifle Grenade Range, Parcel 221Q-X is located in the southwest portion of the Main Post (Figure 1-1). Parcel 221Q-X, is a 5.23-acre area approximately 500 feet north of Former Range 19, Qualification Pistol Range, Parcel 75Q, and immediately south of the Former Skeet Range, Parcel 69Q (Figure 1-2). The parcel is bounded to the south, and divided by, a service road that connects to Iron Mountain Road. The area is heavily wooded and no standing structures currently exist at the site.

Former Rifle Grenade Range, Parcel 221Q-X, was used to train soldiers in the proper use of rifle grenades. The range was identified on the 1946 reservation map and Plate 10 of the July 1999 FTMC archive search report maps. The FTMC archive search report states that this rifle grenade range was used during World War II and was abandoned by 1958. The search report also states that World War II vintage rifle grenades were found northeast of Range 19 on the south side of the service road. Direction of fire is believed to have been toward the southeast from a firing line that would have been established at the northeast end of the parcel. This firing arrangement would allow the ridge to the southeast to serve as a backstop for rifle grenade fire.

The overall elevation of Former Rifle Grenade Range, Parcel 221Q-X, ranges from about 840 to 940 feet mean sea level. The highest elevation is at what is believed to be the target area for the range. Shallow groundwater flow probably follows site topography, with movement toward the northeast. A surface drainage feature passes through this parcel, beginning at the southeastern-most corner of the parcel boundary and exiting the site to Skeet Range, Parcel 69(Q) (Figure 1-2).

The soils at Former Rifle Grenade Range, Parcel 221Q-X, fall into Jefferson series, 0 to 10 percent slopes (U.S. Department of Agriculture, 1961).

The Jefferson series consists of well-drained, strongly acidic soils that occur in small areas on fans and on foot slopes of Choccolocco, Colvin, and Coldwater Mountains. These soils have developed from old local alluvium that washed or sloughed from ridges of sandstone, shale, and Weisner quartzite. The surface soil is dark grayish-brown, fine, sandy loam, and the subsurface soil is yellowish-brown, light, fine, sandy clay. Fragments of sandstone and quartzite, as much as 8 inches in diameter, are on the surface throughout Jefferson soils. The depth to bedrock on these soils typically range from 2 feet to greater than 4 feet. The depth to the water table is likely greater than 20 feet. The typical soil description is 1.5 to 4 feet of well-drained, gravelly, fine, sandy clay developed from local alluvium that washed from soils underlain by sandstone and shale.

1.3 Scope of Work

The scope of work for activities associated with the site investigation at Former Rifle Grenade Range, Parcel 221Q-X, as specified in the statement of work, includes the following tasks:

- Develop the SFSP attachment
- Develop the SSHP attachment

- Develop the site-specific UXO safety plan attachment
- Conduct a surface and near-surface UXO survey over all areas to be included in the supplemental sampling effort
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards
- Collect three surface soil samples, three subsurface soil samples, two surface water samples, and two sediment samples to determine whether potential site-specific chemicals (PSSC) are present at Former Rifle Grenade Range, Parcel 221Q-X, and to provide data useful for supporting any future planned corrective measures and closure activities.

Former Rifle Grenade Range, Parcel 221Q-X, falls within the “Possible Explosive Ordnance Impact Areas” shown on Plate 10 of the July 1999 FTMC archive search report maps; therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities at this site. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance. The site-specific UXO safety plan attachment addresses the manner in which the avoidance will be conducted.

Upon completion of the field activities and sample analyses (Section 4.5), draft and final reports will be prepared to summarize the results of the activities, to evaluate the absence or presence of PSSCs at this site, and to recommend further actions, if appropriate. SI summary reports will be prepared in accordance with current U.S. Environmental Protection Agency (EPA) Region IV and the Alabama Department of Environmental Management (ADEM) guidelines.

2.0 Summary of Existing Environmental Studies

An environmental baseline survey (EBS) was conducted by Environmental Science and Engineering, Inc. (ESE) to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal (including migration) has occurred.
2. Areas where only release or disposal of petroleum products has occurred.
3. Areas of contamination below action levels.
4. Areas where all necessary remedial actions have been taken.
5. Areas of known contamination with removal and/or remedial action underway.
6. Areas of known contamination where required response actions have not been taken.
7. Areas that are not evaluated or require further evaluation.

For non-Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) environmental or safety issues, the parcel label includes the following components: a unique non-CERCLA issue number, the letter "Q" designating the parcel as a Community Environmental Response Facilitation Act (CERFA) Category 1 Qualified Parcel, and the code for the specific non-CERCLA issue(s) present (ESE, 1998). The non-CERCLA issue codes used are:

- A = Asbestos (in buildings)
- L = Lead-based paint (in buildings)
- P = Polychlorinated biphenyls
- R = Radon (in buildings)
- RD = Radionuclides/radiological issues
- X = UXO
- CWM = Chemical warfare material.

The EBS was conducted in accordance with the CERFA (CERFA-Public Law 102-426) protocols and U.S. Department of Defense policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of CERCLA-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historic maps and aerial photographs were reviewed to document

historic land uses. In addition, visual site inspections were conducted to verify conditions of Former Rifle Grenade Range, Parcel 221Q-X.

Former Rifle Grenade Range, Parcel 221Q-X, was identified as a Category 1 CERFA site, qualified “X” for UXO. This CERFA site is a parcel where no known or recorded storage, release, or disposal (including migration) has occurred on site property, but is a qualified for potential UXO. Former Rifle Grenade Range, Parcel 221Q-X, also requires additional evaluation to determine its environmental condition.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objective (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for Former Rifle Grenade Range, Parcel 221Q-X. This section incorporates the components of the DQO process described in the publication EPA 540-R-93-071, *Data Quality Objectives Process for Superfund* (EPA, 1993). The DQO process as applied to Former Rifle Grenade Range, Parcel 221Q-X, is described in more detail in Section 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples, and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III methods where applicable, as presented in Chapter 4.0 of this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages along with electronic copies by the laboratory using Contract Laboratory Program-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

3.2 Data Users and Available Data

The available data, presented in Table 3-1, related to the SI at Former Rifle Grenade Range, Parcel 221Q-X, have been used to formulate a site-specific conceptual model. This conceptual model was developed to support the development of this SFSP, which is necessary to meet the objectives of these activities and to establish a basis for future action at the site. The data users for the data and information generated during field activities are primarily EPA, USACE, ADEM, FTMC, and the USACE supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual chemical contamination in site media.

3.3 Conceptual Site Model

The conceptual site exposure model (CSEM) provides the basis for identifying and evaluating potential risks to human health in the risk assessment. The CSEM includes receptors and potential

exposure pathways appropriate to all plausible scenarios. The CSEM facilitates consistent and comprehensive evaluation of risk to human health through graphically presenting all possible exposure pathways, including sources, release and transport pathways, and exposure routes. In addition, the CSEM helps to ensure that potential pathways are not overlooked. The elements of a complete exposure pathway and CSEM are:

- Source (i.e., contaminated environmental) media
- Contaminant release mechanisms
- Contaminant transport pathways
- Receptors
- Exposure pathways.

Contaminant release mechanisms and transport pathways are not relevant for direct receptor contact with a contaminated source medium.

Primary contaminant releases were probably limited to possible contaminants that entered surface soil. Potential contaminant transport pathways include infiltration and leaching to subsurface soil, dust emissions and volatilization to ambient air, surface water runoff, and erosion to surface water and sediment. Leaching to groundwater is not anticipated to be a potential contaminant transport pathway because the site history indicates that only rifle grenades were used at the site; it is not expected that explosive breakdown products would leach to groundwater (approximately 20 feet below ground surface [bgs]).

The site is not currently used and access is restricted. Most of the site is undeveloped. The site is not currently maintained in any fashion. Although it is unlikely, a trespasser could circumvent base security and wander into this area; therefore, the only receptor evaluated under the current land use conditions is the recreational site user. The surface water drainage feature does not support fish, and hunting on this site is not feasible because of the restricted nature of the base; therefore, fish and venison pathways are not evaluated for the recreational site user. Other potential receptors considered, but not included under current land-use scenarios, include the following:

- **Groundskeeper.** The site is not currently maintained by a groundskeeper.
- **Construction Worker.** The site is unused, and there is not any development or construction occurring.
- **Resident.** The site is not currently used for residential purposes.

Future land-use in this area will most likely be residential; the area is planned for a retirement development reserve. The site may not be deemed safe for public access until remediation has been completed because of the potential for UXO (FTMC, 1997). Receptors under the future land-use scenario are not evaluated for exposure to groundwater because it is not expected that any potential contamination from UXO associated with this site will leach to groundwater. The following receptor scenarios are evaluated for the future land-use scenario:

- **Resident.** This site is planned for a retirement community. The resident is evaluated for future use of the site.
- **Groundskeeper.** The site is likely to have areas that will need to be maintained, such as around parking lots and buildings.
- **Construction Worker.** The site is expected to be developed in the near future, thus this receptor is evaluated.
- **Recreational Site User.** The recreational site user is evaluated under the current and future land-use scenario to evaluate exposure to sediment and surface water. Fishing will not be included as a pathway because the on-site stream is too small to support fish. Ingestion of venison will not be included as a potential exposure pathway because the presence of a retirement community would preclude hunting.

A summary of relevant contaminant release and transport mechanisms, source and exposure media, and receptors and exposure pathways for this site is provided in Table 3-1 and Figure 3-1.

3.4 Decision-Making Process, Data Uses, and Needs

The decision-making process consists of a seven-step process that is presented in detail in Section 4.3 of the WP and will be followed during the site investigation at Former Rifle Grenade Range, Parcel 221Q-X. Data uses and needs are summarized in Table 3-1.

3.4.1 Risk Evaluation

Confirmation of contamination at Former Rifle Grenade Range, Parcel 221Q-X, will be based on using EPA definitive data with CESAS Level B data packages to determine whether or not PSSCs are detected in site media. Detected site chemical concentrations will be compared to site-specific screening levels developed in the *Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000b). Definitive data will be adequate for confirming the presence of site contamination and for supporting a feasibility study and risk assessment.

Assessment of potential ecological risk associated with sites or parcels (e.g., surface water and sediment sampling, specific ecological assessment methods, etc.) will be addressed in accordance with the procedures in the WP.

3.4.2 Data Types and Quality

Surface soil, subsurface soil, surface water, and sediment samples will be sampled and analyzed to meet the objectives of the SI at Former Rifle Grenade Range, Parcel 221Q-X. Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. The samples will be analyzed by EPA-approved SW-846 methods, where available; comply with EPA definitive data requirements; and be reported using hard copy data packages along with electronic copies. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4.3 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Section 9.0 of the QAP.

4.0 Field Activities

4.1 UXO Survey Requirements and Utility Clearances

The Former Rifle Grenade Range, Parcel 221Q-X, falls within the “Possible Explosive Ordnance Impact Area” shown on Plate 10 of the FTMC archive search report maps (USACE, 1999). Therefore, IT will conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings.

4.1.1 Surface UXO Survey

A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for each avoidance. Subsurface metallic anomalies will not be disturbed, and will also be marked for easy avoidance. UXO personnel requirements, procedures, and detailed descriptions of the geophysical equipment to be used are provided in Chapter 4.0 and Appendix E of the approved SAP (IT, 2000). Additionally, the site-specific UXO safety plan attachment has been written in conjunction with Appendix E of the SAP as a necessary measure for UXO avoidance.

4.1.2 Downhole UXO Survey

During the soil boring and downhole sampling, downhole UXO surveys will be performed to determine if buried metallic objects are present. UXO monitoring, as described in Chapter 4.0 of the SAP (IT, 2000a), will continue until undisturbed soils are encountered or the borehole has been advanced to 12 feet bgs, whichever is reached first.

4.1.3 Utility Clearances

After the UXO surface survey has cleared the area to be sampled and prior to performing any intrusive sampling, a utility clearance will be performed at locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP (IT, 2000a). The site manager will mark the proposed locations with stakes, coordinate with the FTMC installation to clear the proposed locations for utilities, and obtain digging permits. Once the locations are approved (for both UXO and utility avoidance) for intrusive sampling, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program at Former Rifle Grenade Range, Parcel 221Q-X, includes the collection of surface soil, subsurface soil, surface water, and sediment samples for chemical analyses. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site.

4.2.1 Surface Soil Sampling

Three surface soil samples will be collected from three locations at Former Rifle Grenade Range, Parcel 221Q-X.

4.2.1.1 Sample Locations and Rationale

The surface soil sampling rationale is listed in Table 4-1. Proposed sampling locations are shown in Figure 4-1. Surface soil sample designations and required QA/QC sample requirements are summarized in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field conditions.

4.2.1.2 Sample Collection

Surface soil samples will be collected from the upper 1 foot of soil by direct-push methodology as specified in Section 4.7.1.1 of the SAP (IT, 2000a). Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. Sample documentation and chain-of-custody will be recorded as specified in Section 4.13 of the SAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.2 Subsurface Soil Sampling

Three subsurface soil samples will be collected in conjunction with surface soil sample activities at Former Rifle Grenade Range, Parcel 221Q-X.

4.2.2.1 Sample Locations and Rationale

Subsurface soil samples will be collected from the soil borings proposed on Figure 4-1. The subsurface soil sampling rationale is listed in Table 4-1. Subsurface soil samples to be collected are listed in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field observations and utility clearance results.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected from soil borings at a depth greater than 1 foot bgs in the unsaturated zone. The soil borings will be advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP (IT, 2000a).

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithologic log will be recorded by the on-site geologist for each borehole. At least one subsurface sample from each borehole will be selected for analyses. The collected subsurface soil samples will be field-screened using a PID in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings exceeding background (readings in ambient air). Typically, the subsurface soil sample showing the highest reading (above background) will be selected and sent to the laboratory for analysis. If none of the samples indicate readings exceeding background using the PID, the deepest interval from the soil boring will be sampled and submitted to the laboratory for analyses. Subsurface soil samples may be selected for analyses from any depth interval if the on-site geologist suspects PSSCs at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analyses. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSCs and/or additional sample data would provide insight to the existence of any PSSCs.

Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.3 Surface Water Sampling

Two surface water samples will be collected from the drainage that flows through the site.

4.2.3.1 Sample Locations and Rationale

The surface water sampling rationale is listed in Table 4-1. The surface water samples will be collected from the proposed locations on Figure 4-1. The surface water sample designations and required QA/QC sample requirements are listed in Table 4-3. The exact sampling locations will be determined in the field by the ecological sampler, based on drainage pathways and actual field observations.

4.2.3.2 Sample Collection

The surface water samples will be collected in accordance with the procedures specified in

Section 4.9.1.3 of the SAP (IT, 2000a). Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.4 Sediment Sampling

Two sediment samples will be collected from the streams at the site. These sediment samples will be collected at the same locations as the surface water samples described in Section 4.2.3.

4.2.4.1 Sample Locations and Rationale

The proposed locations for the sediment samples are shown in Figure 4-1. Sediment sampling rationale is presented in Table 4-1. The sediment sample designations and required QA/QC sample requirements are listed in Table 4-3. The actual sediment sample points will be at the discretion of the ecological sampler, based on the drainage pathways and actual field observations.

4.2.4.2 Sample Collection

The sediment samples will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sample documentation and chain of custody will be recorded as specified in Section 4.13 of the SAP. The sediment samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment to prevent crosscontamination between sampling locations. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP (IT, 2000a). Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary to obtain the required level of accuracy. Horizontal coordinates will be referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum, 1983.

Elevations will be referenced to the National Geodetic Vertical Datum of 1929 or the North American Vertical Datum of 1988 (soon to be established on site).

Horizontal coordinates for soil, sediment, and surface water locations will be recorded using a GPS to provide accuracy within 1 meter. Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP. UXO avoidance will be implemented during surveying activities.

4.5 Analytical Program

Samples collected at locations specified in this chapter of this SFSP will be analyzed for the specific suites of chemicals and elements based on the history of site usage, as well as EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from Former Rifle Grenade Range, Parcel 221Q-X, consist of the following list of analytical suites:

- Target analyte list metals - Method 6010B/7000
- Nitroexplosives - Method 8330
- Perchlorate - Method 314.

In addition, the sediment samples will be analyzed for the following list of parameters:

- Total organic carbon – Method 9060
- Grain size – ASTM D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-4 in this SFSP and Table 6-1 in the QAP. The samples will be submitted to the laboratory for one week turnaround time. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard copy data packages along with electronic copies by the laboratory using Contract Laboratory Program-like forms. These packages will be validated in accordance with EPA National Functional Guidelines by Level III criteria.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP (IT, 2000a). Completed analysis request/chain of custody records will be secured and included with each shipment of coolers to:

Attn: John Reynolds
Severn Trent Laboratories, Inc.

5815 Middlebrook Pike
Knoxville, Tennessee 37921
Telephone: (865) 588-6401.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP (IT, 2000a). The IDW generated at Former Rifle Grenade Range, Parcel 221Q-X, site is expected to include decontamination fluids, soil cuttings, and disposable personal protective equipment. The IDW will be staged in the fenced area surrounding Buildings 335 and 336 while awaiting final disposal.

4.8 Site-Specific Safety and Health

Health and safety requirements for this SI are provided in the SSHP attachment for Former Rifle Grenade Range, Parcel 221Q-X. The SSHP attachment will be used in conjunction with the installation-wide SHP. Additionally, the site-specific UXO safety plan attachment has been prepared as a necessary measure for UXO avoidance.

5.0 Project Organization and Schedule

The project schedule for the SI activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team (BCT) and during either a BCT meeting or conference call.

6.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Fort McClellan (FTMC), 1997, ***Fort McClellan Comprehensive Reuse Plan***, Fort McClellan Reuse and Redevelopment Authority of Alabama, prepared under contract to the Calhoun County Commission, November.

IT Corporation (IT), 2000a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, March.

IT, Corporation (IT), 2000b, ***Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama***, July.

IT Corporation (IT), 1998, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

U.S. Army Corps of Engineers (USACE), 1999, ***Archives Search Report, Maps, Fort McClellan, Anniston, Alabama***, July.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling and Analysis Plan***, Engineer Manual EM 200-1-3, September.

U.S. Department of Agriculture (USDA), 1961, ***Soil Survey, Calhoun County, Alabama***, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, ***Data Quality Objectives Process for Superfund, Interim Final Guidance***, EPA 540-R-93-071, September.